

REMARKS

1. Applicant thanks the Examiner for the Examiner's comments, which have greatly assisted Applicant in responding.

2. Claim Objections

Claim 13, identical to Claim 11, has been canceled herein. Applicant respectfully requests that the Examiner withdraw the objection to Claim 13.

3. 35 U.S.C. §103(a).

(i) The Examiner has rejected Claims 1-4, 6-13, 18, and 19 as being unpatentable over Deaton U.S. Patent No. 5,649,114, in view of Gopinathan et al 5,819,226 (Gopinathan).

Applicant respectfully traverses.

Claim 1

The claimed invention is very clear in that it is using textual information, not previously used in statistical models due to the high dimensionality of text data, and transforming it into useful predictors of fraud (see page 2, lines 9-16). The patent application discloses numerous examples of using merchant text, some of which are as follows (emphasis added):

(On page 3, lines 7-9)

For one obvious example, **the merchant text** could readily allow discrimination between "**budget**" and "**high-scale**" department stores.

(On page 29, lines 12-16)

The content vector assigned to this merchant would be a vector sum of the content vector associated with each of its component trigrams, "BOB", "TOY", "STO", "TOR", "ORE". Thus, this merchant would share at least one trigram with "Toys R Us". **The content vector of this merchant name** can then be compared with the content vectors of the existing list of UMs, and the UM with closest matching content vector can be assigned to the merchant name.

(On page 31, lines 23-25)

A human expert or an automated algorithm can also name cardholder clusters based on the merchants they patronize (**getting names such as “business traveler” or “starving student”**)

(On page 32, section numbered 2., through page 33, line 3.)

2. At the individual investigation level, named and generic clusters information help a case management system provide human-intelligible information to the fraud analyst as to why the lead presented to the analyst represents **a suspicious transaction**. This helps the analyst to have a better and more efficient investigative process.

- For instance, a reason can be provided to the analyst like **“This transaction is suspicious because it involves a ‘starving student’ shopping at a ‘high-end store’”**.
- For instance, a reason can be provided to the analyst like “This transaction is suspicious because cardholders like the one in this transaction shop at stores like the one in this transaction less than 1% of the time”.
- For instance, a reason can be provided to the analyst saying something like **“This transaction is suspicious because it involves a ‘starving student’ spending over \$500 at a jewelry store.”**
- For instance, a reason can be provided to the analyst saying something like “This transaction is suspicious because it involves a cardholder who normally transacts at ‘discount stores’ now transacting at a ‘high-end store’”.

Further, the claimed invention is concerned with the need to be able to understand textual data and with automation. Support can be found at least on page 3, lines 22 through page 4, line 15, as follows (emphasis added):

This inadequacy of statistical methods has often been addressed by a human review stage that is consequent to the statistical filtering provided by a statistical model. Once an account has been statistically flagged as potentially containing fraudulent activities, a human analyst then reviews the accounts before taking fraud-control actions. **The human analyst, unlike the statistical model, has the ability to understand textual data and incorporate its significance into the overall analysis**

Unfortunately, the human review process, in addition to the inefficiencies and inconsistencies associated with a non-automated stage, tends to degrade the quality of fraud identification more than help it. **Human analysts, by necessity, have a significantly less assembled fraud experience** than a computerized method can compile (e.g. **at most thousands of cases, as compared with hundreds of millions by a statistical model**). Consequently, the overall ability of human analysts to distinguish fraudulent transactions from non-fraud ones, given the same information, has consistently been demonstrated to be **inferior to that of high-end computer-trained statistical models** that were built using vast quantities of historical data. **Even the advantage of access to textual information that is available to human analysts but not traditional statistical methods, is not enough to compensate for the loss of performance experienced when human analysts are allowed to “second-guess” computer-derived statistical fraud classification.** Consequently, the current “best practices” process for fraud detection, under most circumstances, is not to allow human judgement to over-rule the computerized analysis.

Accordingly, it is desirable to provide a statistical method of risk measurement and detection, such as may be used for financial card fraud prevention that uses textual or other high categorical information to assist in the detection and measurement of transaction or account risk.

Deaton discloses a technique used by marketers to provide incentives to consumers. For example, the title of Deaton's disclosure reflects as such, “Method and System for Selective Inventive Point-of-Sale Marketing in Response to Customer Shopping Histories.” More specifically and according to the Technical Field section to Deaton,

Deaton discloses a technique that relates to transaction processing and analysis methods and systems, including check, credit card and debit card verification and marketing systems. Deaton discloses a technique for processing and developing a customer database of customer information, such as a credit verification status and transaction frequency and dollar volume over specified intervals, that can be used for credit verification, targeted customer marketing and other customer related purposes.

Deaton is absolutely silent on using or solving the problem of using textual data or any other high categorical information in assisting the detection and measurement of transaction or account risk.

(a) According to MPEP 2141.01(a):

In order to rely on a reference as a basis for rejection of an applicant's invention, the reference must either be:

1. in the field of applicant's endeavor or, if not,
2. then be reasonably pertinent to the particular problem with which the inventor was concerned.

In re Oetiker, 977 F.2d 1443, 1446, 24 USPQ2d 1443, 1445 (Fed. Cir. 1992).

Applicant is clear that the application relates specifically to risk detection and measurement by applying statistical predictive models to the content of transactions, namely high categorical data (see at least Field of Invention to Applicant and the above.) Deaton is silent on both using high categorical data and statistical models. Deaton is not in the field of Applicant's endeavor and does not satisfy the first requirement hereinabove.

The particular problem with which the inventor was concerned is using high categorical information from a transaction in an automated way, namely, a predictive or statistical model. Deaton is silent on both matters. Therefore, Deaton is not reasonably pertinent to the particular problem with which the invention is concerned.

Therefore, Deaton is non-analogous art and the rejection of Claim 1 to Deaton is improper.

(b) Further, in rejecting Claim 1, the Examiner stated that Deaton teaches a system receiving transaction information, from a transaction between a merchant and a

customer, extracting department, product and product group related to the purchase transaction, grouping products together to form product groups, and determining which product group a given transaction should be associated with, and cited Figure 18A and its accompanying text, Col 68, lines 20-63.

37 CFR §1.104(c)(2) states (emphasis added):

(2) In rejecting claims for want of novelty or for obviousness, the examiner must cite the best references at his or her command. When a reference is complex or shows or describes inventions other than that claimed by the applicant, the particular part relied on must be designated as nearly as practicable. **The pertinence of each reference, if not apparent, must be clearly explained and each rejected claim specified.**

Applicant is of the opinion that the Examiner failed to provide a nexus between what is disclosed in Deaton to specific limitations in Claim 1. Applicant respectfully points out to the Examiner that the invention is presumed patentable unless otherwise shown by the Examiner. Hence, Applicant respectfully requests that the Examiner shown which part relied on by the Examiner is read on the which limitation of the Claim in question. The burden is not on the Applicant.

Therefore, Applicant is of the opinion that the rejection is improper.

(c) However, in the spirit of compact prosecution, Applicant respectfully points out that Figure 18A and the accompanying text, Col. 68, lines 20-63 disclose customer's purchase is transacted with the user of bar code scanning register and the cash register maintains department, product, and product group shopped. The way such information is obtained is disclosed in Deaton as follows, col. 68, lines 51-63 (emphasis added):

To provide this information, **information regarding the particular product and the department of the product is generated by the bar code reader 123a, or through entry through the cash register**, and transmitted to the host processor 110. The host processor 110 then identifies each particular product being purchased, compares it against the stored data tables and generates an indication of the type of coupon to be given to the customer. As previously noted, this indication from the host processor 110 may comprise a signal transmitted on the display 124 or the signal may be utilized to generate the actual printing of a

coupon using the system similar to that shown in U.S. Pat. Nos. 4,723,212 and 4,910,672.

Nowhere in the citation hereinabove or anywhere else in Deaton does Deaton disclose using textual or high categorical merchant data.

According to MPEP 2143.03 All Claim Limitations Must Be Taught or Suggested:

To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). "All words in a claim must be considered in judging the patentability of that claim against the prior art." *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

Deaton does not teach or suggest all the claim limitations. Gopinathan does not teach all the claim limitations. None of the prior art of reference, alone or in combination, teach or suggest all the claim limitations. Therefore, a *prima facie* obviousness of the claimed invention was not established.

Nevertheless, Applicant has amended Claim 1 to further clarify the invention. No new matter has been added. Support can be found at least in the citations hereinabove.

(d) At the bottom of page 3 of the Office Action, the Examiner stated that Deaton teaches "said customer record used in a predictive model for determining the likelihood of the occurrence of future transactions." However, the Examiner failed to provide a proper reference thereto in the action.

According to MPEP 707.07(f) Answer All Material Traversed [R-3]:

In order to provide a complete application file history and to enhance the clarity of the prosecution history record, an examiner must provide clear explanations of all actions taken by the examiner during prosecution of an application.

Applicant has not found the statement to Deaton to be true and respectfully requests that the Examiner provide support for such statement to Deaton. The rejection relies on such statement, hence the rejection is improper.

Again, on page 4 of the action, first full paragraph, the Examiner stated, "However, Deaton teaches a method and system for predictive models for grouping a plurality of products," and failed to provide a proper reference thereto in the action. Applicant has found no predictive models for grouping a plurality of products in Deaton. Applicant respectfully requests that the Examiner, relying on such to rejection Applicant's Claim 1, provide evidence.

Again, the Examiner stated at the end of page 4 and the beginning of page 5, "It would have be[sic] obvious to one of ordinary skill in the art at the time of the Applicant's invention to modify Deaton to include these steps because Deaton teaches the use of predictive modeling as an application risk management and credit verification."

Again, Applicant traverses because nowhere does Deaton teach a predictive model as an application risk management and credit verification. The rejection is improper.

As such, Applicant respectfully requests that the Examiner withdraw the rejection under 35 USC §103(a). Accordingly, the dependent Claims to Claim 1 are deemed to be nonobvious.

Similarly, Claims 18 and 19 are in allowable condition.

(ii) The Examiner has rejected Claims 5, 20-22 as being unpatentable over Deaton and Gopinathan as applied above and further in view of Carter, U.S. Patent No. 5,878,419.

The rejection of Claims 5, 20-22 under 35 U.S.C. §103(a) is deemed moot in view of Applicant's comments concerning Claim 1, above. Therefore, Applicant respectfully requests that the Examiner withdraw the rejection under 35 U.S.C. §103(a).

(iii) The Examiner has rejected Claims 14-17, and 23 as being unpatentable over Deaton and Gopinathan as applied above and further in view of Sheppard, U.S. Patent No. 6,026,397.

The rejection of Claims 14-17, and 23 under 35 U.S.C. §103(a) is deemed moot in view of Applicant's comments concerning Claim 1, above. Nevertheless, Applicant amended Claim 14 to further clarify the invention. Applicant respectfully requests that the Examiner withdraw the rejection under 35 U.S.C. §103(a).

CONCLUSION

Based on the foregoing, Applicant considers the present invention to be distinguished from the art of record. Accordingly, Applicant earnestly solicits the Examiner's withdrawal of the rejections raised in the above referenced Office Action, such that a Notice of Allowance is forwarded to Applicant, and the present application is therefore allowed to issue as a United States patent. The Examiner is invited to call to discuss the response. The Commissioner is hereby authorized to charge any additional fees due or credit any overpayment to Deposit Account No. 07-1445.

Respectfully Submitted,



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